
The Potential of Podiatric Medicine in Comprehensive Health Care

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MORE THAN 520,000 patient visits were made weekly in 1970 to the 7,045 podiatrists in active practice in this country, according to a survey by the National Center for Health Statistics (1). Of these podiatrists, 6,340 or 90 percent were engaged in full-time practice and more than half spent 40 or more hours each week in patient care. The 1970 survey revealed a ratio of 3.5 active podiatrists per 100,000 population (1), a decrease from the figure of 4.2 reported for 1950 (2).

This decrease in ratio of podiatrists to population occurred despite a more than 250 percent increase in the number of graduates from the five existing colleges of podiatric medicine. In a report of a Public Health Service study, Pennell (3) concluded that by 1980 the ratio will increase to 4.2 per 100,000 population—the same as it was 30 years earlier.

Since 1950, however, certain changes have drastically increased the demand for podiatric medical services. These changes include the following:

1. The advent of Medicare and Medicaid and the inclusion of podiatric services in these programs.
2. Inclusion of podiatric medical services in Blue Shield and other private health insurance

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plans and in Workmen's Compensation coverage.

3. Initiation and implementation of provisions which allow clinical privileges for podiatrists on the staffs of hospitals approved by the Joint Commission on Accreditation of Hospitals.

4. Inclusion of podiatric medical schools in the Federal Comprehensive Health Manpower Acts of the 1960s and 1970s.

5. Increase in the number of podiatrists commissioned in the Armed Forces and the recent provision by the Armed Forces of scholarships for podiatry students.

6. Increase in the proportion of older people in the U.S. population. By January 1970, 19.6 million people—nearly 10 percent of the civilian population—were over age 65. In 1900, only 4 percent were in this age group. Census Bureau projections are for 25 million people in this age group by 1985 (4). Persons over age 65 seek the services of podiatrists more frequently than do persons in other age groups (5).

7. A disproportionate increase in the total U.S. population compared to the population of actively practicing podiatrists. Although the population has increased by 34 percent since 1950, the number of actively practicing podiatrists has increased by only about 10 percent during the same period (1,2).

8. Increase in the number of people who become afflicted with chronic diseases and disorders. Many chronic conditions, such as the arthritides, diabetes, or post-cardiovascular accident paralysis, have primary or secondary manifestations in the feet.

9. Increase in public interest and knowledge about health matters.

In addition, within the next few years it appears certain that the increased costs of health care, combined with a host of other factors, will result in the adoption of some form of national health insurance. To date, each plan considered includes provisions for podiatric medical care. Therefore, it is anticipated that any form of na-

tional health insurance will increase the demand for podiatric medical services from people who were previously unable to afford such care.

In spite of the changes which have dramatically increased the demand for podiatric medical care and the changes which are rapidly developing (involving new mechanisms of financing and delivering health services), 92 percent of the nation's podiatrists are engaged in single-discipline solo or partnership practice. In 1970 only 1.9 percent (130) of the podiatrists were engaged in group practice, and only 1 percent were employed by an organization or institution other than government (1). It is believed that less than 10 percent of the nation's doctors of podiatric medicine are part of a major prepaid group today.

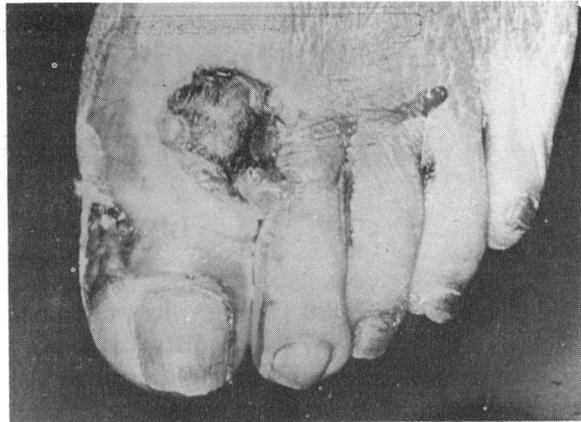
Health manpower estimates of requirements for podiatrists vary from a high of approximately 24,000 to a low of 15,000 by 1980 (3,6,7). The projection of 9,900 podiatrists who will be in practice by 1980, based on data from the Public Health Service, falls far short of achieving even the lowest of the estimated figures.

As an increasing number of people seek podiatric medical care, it appears certain that podiatrists will be incapable of meeting such demands under the present manner of delivery of care. This crisis, which is rapidly becoming more acute, can be alleviated or perhaps even averted if serious consideration is given to the role of the podiatrist and if his relationship to the so-called health care team is changed to permit more efficient use of his knowledge and skills.

The Podiatrist's Present Role

The podiatrist today functions in a manner somewhat analogous to that of a physician specialist—he makes diagnoses, gives medical and surgical care, and makes independent judgments. In effect, he is a physician who is limited by license to his specialty. Like other medical specialties, the profession of podiatric medicine has a dynamic role, one which is constantly changing as new scientific and technical advances become available and incorporated in the education and training of podiatrists.

In the earlier days of podiatry, practice was generally limited to the palliative care of superficial skin lesions (commonly referred to as corns and calluses), paring of nails, and the dispensing of various types of arch supports. During the past two decades and particularly in the 1960s, recog-



Ulcer with localized gangrene on great toe of patient with occlusive vascular disease of the foot

nition of the natural history of many foot disorders and the demand by patients for comprehensive podiatric care have led to a redefinition of the role of the podiatrist.

This redefinition incorporates the palliative functions of the podiatrist with the concept that he must be concerned and knowledgeable about the relationship of his specialty to the total patient. Although palliation is an integral part of the practice of any branch of medicine, diagnostic, therapeutic, and preventive measures should be taken whenever appropriate to eliminate or reduce morbidity or, if possible, to prevent the occurrence or eliminate the presence of a disease or disorder.

The present practice of podiatric medicine requires thorough education and training in the medical and surgical components of the specialty, as well as a strong baseline of knowledge in general medicine and surgery. Because many people who visit a podiatrist either do not have a primary physician or may not have visited one for some time, the podiatrist must be able to obtain and interpret a medical history and perform a screening physical examination. This helps him to assess the relationship of possible systemic disorders to the podiatric problem presented by the patient.

The podiatric medical student now receives extensive training in physical diagnosis and general medicine and surgery. During the second year of the 4 academic years of study at the California College of Podiatric Medicine, for example, students learn to obtain a complete medical history and to perform a routine physical examination including the use of the stethoscope, ophthalmoscope, sphygmomanometer and neurological hammer. Instruction is given during the third and

fourth years in internal medicine, neurology, anesthesiology, dermatology, pediatrics, and radiology, as well as in general, vascular, orthopedic, and plastic surgery.

In the clinical years, students perform physical examinations on new patients admitted to the hospital or outpatient department of the college. The classroom instruction and clinical supervision are provided by physicians who are board certified or eligible in their specialty and who, for the most part, also hold faculty appointments at the University of California San Francisco Medical Center or the Stanford University School of Medicine.

In a broader sense, the podiatrist, like other medical and surgical specialists, often performs an important public health function by identifying previously undetected systemic diseases and disorders, with or without lower extremity involvement. His training provides him with the knowledge and skills to refer such patients to appropriate health specialists for concurrent care. The ability to function in this manner is advocated in the 1967 report of the National Commission on Health Manpower, which stipulated that the podiatrist should be trained to suspect and recognize systemic disease (8).

As pointed out previously, the need for podiatrists has increased and will continue to increase with the growing number and proportion of aging and aged citizens. Older persons suffer many chronic diseases and disorders, including those that are receiving much attention today as major causes of death and disability—heart disease, cancer, and stroke. Each of these broad categories of disease may present the following direct or indirect manifestations in the feet:

Heart disease

Ankle edema

Occlusive vascular disease of small and large vessels of the lower extremity resulting in pain, infection, ulceration, gangrene, and amputation

Clubbing of the toes

Dry skin

Decubitus ulcers due to long periods of bed rest

Cancer

Malignant melanoma

Kaposi's sarcoma

Lymphomas

Junctional nevi (pre-malignant)

X-ray burns (pre-malignant)

Bone tumors

Patient with necrobiosis lipoidica diabetorum, a condition which may precede the clinical expression of diabetes mellitus and which typically affects the lower legs and feet

Stroke

Deformity of the foot

Decubitus ulcers

Ulcers due to the pressure of braces or shoes

Atrophy of foot and leg muscles due to disuse

Obviously, unless major breakthroughs in research occur, the number of people with problems such as vascular disease, degenerative joint disorders, and diabetes mellitus, will grow in proportion to the increase in the population of older Americans. Persons with such conditions often develop lower extremity disorders which may include problems such as mild to severe pain, difficulty or inability to ambulate, and severe foot infection or gangrene with eventual amputation of all or part of the lower extremity. To varying degrees, each of these sequelae can result in disability and may also cause social as well as economic dependency on families and the community (9,10). In addition, the inability to ambulate, especially in older persons, often results in rapid deterioration and premature death.

What is most important, however, is that these complications frequently may be prevented or successfully treated. Among the possible solutions are programs to educate persons who have conditions such as peripheral vascular disease or diabetes mellitus about the importance of foot care,





Second toe overlaps the great toe as a result of a severe form of rheumatoid arthritis, a painful and sometimes disabling condition

as well as periodic screening examinations of such patients. Prompt medical or surgical (and rehabilitative) treatment provided by the podiatrist can prevent further damage to the feet and improve basic foot function.

Specific Podiatric Medical Programs

Among the best-documented and most extensive podiatric programs in a large metropolitan public health department was the one reported by the District of Columbia (11). This program grew from 1,377 patient visits in 1965 to about 5,500 in 1968 (12). A remarkably broad range of foot conditions was encountered during that period. These included podiatric problems associated with such chronic disorders as diabetes, osteoarthritis, rheumatoid arthritis, and occlusive vascular disease of the lower extremities, as well as neurological diseases such as cerebral vascular accidents, poliomyelitis, Parkinson's disease, and birth defects. Interestingly, 20 percent of the new patients in 1968 were 5 to 19 years old.

The District of Columbia Department of Public Health also reported the results of a podiatric screening program for almost 9,000 elementary school children (13). Of these children, 997 were referred for treatment and another 838 for further study. It was concluded that in addition to the long-range benefits of preventing foot ills in adults, treatment of minor foot abnormalities early in life means more comfort for youngsters during the active years of childhood.

In cooperation with the Philadelphia Department of Public Health, a foot health program called "Keep Them Walking" (14), evaluated 1,366 chronically ill and aged persons. The study revealed that each patient presented an average of 7.8 clinical conditions of which 4.8 needed im-

mediate attention in order to avoid complications. These conditions included clinical symptoms of peripheral vascular diseases, infections and ulcerations, dryness of skin highly susceptible to fissuring and secondary infection, as well as a number of other dermatological, musculoskeletal, neurological, and vascular conditions. A very significant finding of the study was that approximately 95 percent of all patients presented some podiatric condition or pedal manifestation of systemic disease which required treatment.

During the past 4 years, the California College of Podiatric Medicine used a fully equipped mobile clinic to provide foot health care to migrant Mexican farm families in the rural Watsonville, Calif., area. Such services, never previously available to these people, were provided during the summer for 2- to 3-week periods by clinical faculty and students. Children were examined and treated during the day, and parents were cared for in the late afternoon or early evening when they returned from the fields. Each year, an average of 200 people in several migrant farm camps received foot care for conditions ranging in severity from routine skin and nail problems to the discovery and subsequent removal of an osseous neoplasm in a child.

Because of the many interrelationships between the podiatric and general medical status of patients, the California College of Podiatric Medicine has initiated several programs for its students. For example, in their clinical years podiatric medical students rotate through the Department of Dermatology at the Stanford University School of Medicine (15) and the University of California San Francisco Medical Center outpatient clinic in such departments and services as orthopedic surgery, radiology, rheumatology, thyroid diseases, diabetes, vascular surgery, pediatrics, and ambulatory and community medicine. In these settings, the students attend clinical conferences and observe patient care situations in a manner similar to that of medical students. In addition to the obvious benefit of improving the clinical competence of podiatric medical students, students from several health disciplines become more familiar with the capabilities as well as the limitations of each profession.

Suggested Future Role

With predictions of a grossly inadequate number of doctors of podiatric medicine and no apparent significant increases for the near future, podiatry

practice in a solo or single-discipline environment is the most inefficient use of this valuable health resource.

It is imperative that podiatrists become more involved in existing prepaid group practices, as well as in the development of newly emerging health maintenance organizations. Podiatrists must become better acquainted with the advantages of group practice for themselves and for their patients. Well-planned HMOs which serve defined populations and which are staffed with an adequate number of trained nonprofessional and technical personnel could increase enormously the professional capacity of a podiatrist.

For example, many of the technical tasks now being performed by the podiatrist could be taught to less-trained personnel who could function under professional supervision. The podiatrist could also be relieved from many purely administrative functions and related tasks by assigning these to other personnel. Furthermore, much of the time now required to obtain a patient's complete medical background could be saved, since most of this information would be available from the patient's record.

Health manpower is a valuable and expensive resource, and no health professional should function at a level which is lower than that for which he is qualified by education, training, and licensure. The need for podiatrists is great enough that podiatric medical doctors should be able to function effectively in a multidisciplinary group practice without wasting their knowledge and skills. Underutilization of any health professional today is an inefficiency that can no longer be permitted, and every effort to avoid such situations must be made.

Conclusion

The undersupply of podiatrists which exists today is anticipated to continue in the immediate future. As a result of factors such as legislation, the reduction of economic barriers to health care, and a better-informed public, podiatric medical services are in great demand. In addition, an increase in the number of aged citizens, who have a high incidence of chronic diseases and disorders with foot manifestations, has created more patients for podiatrists.

The podiatrist of today functions in a manner which is similar to that of a physician specialist; he is trained to diagnose and treat by every available

method as well as to relate his specialty to the total health needs of the patient. Because of their small number, podiatrists should provide their services in the most efficient, time-saving environment possible, such as a well-administered multidisciplinary group practice. Furthermore, they should delegate many of the technical tasks they now perform to less-trained personnel.

REFERENCES

- (1) National Center for Health Statistics: Preliminary results of podiatry manpower survey; United States, 1970. Department of Health, Education, and Welfare, vol. 19, No. 11 (supplement), February 8, 1971.
- (2) National Institutes of Health: Manpower supply and educational statistics for selected health occupations. Health Manpower Source Book, sec. 20, p. 105, 1969.
- (3) Pennell, M. Y.: Podiatric education and manpower. *J Podiatry Educ* 1: 11-21, June 1970.
- (4) Somers, A. R.: Health care in transition: directions for the future. Hospital Research and Educational Trust, Chicago, 1971, p. 16.
- (5) National Center for Health Statistics: Characteristics of patients of selected types of medical specialists. PHS Publication No. 1000, Series 10, No. 8. U.S. Government Printing Office, Washington, D. C., 1964, pp. 46-48.
- (6) Podiatric medicine; function and education. *J Podiatry Educ* 4: 6-13, March 1973.
- (7) Spear, M.: Paramedical services for older Americans. *J Am Geriatr Soc* 16: 1089, October 1968.
- (8) Report of the National Advisory Commission on Health Manpower. U.S. Government Printing Office, Washington, D. C., 1967, vol. 2, p. 432.
- (9) Steininger, F. H.: Provision of podiatric services for elderly welfare clients—guidelines for a demonstration project under section 1115 of the Social Security Act. State Letter No. 943. Bureau of Family Services, Welfare Administration, Department of Health, Education, and Welfare, December 19, 1966.
- (10) Cumming, R. J.: Growing problems in protective services for the aged. *Geriatrics* 21: 163-173, September 1966.
- (11) Woodside, N., and Shapiro, J.: Podiatry services at clinics of a local health department. *Public Health Rep* 82: 389-394, May 1967.
- (12) District of Columbia Department of Public Health: Podiatry program at the District of Columbia Department of Public Health, 1965-1968.
- (13) Shapiro, J., and Rhee, C. R.: Podiatry screening project for children in the District of Columbia. *Public Health Rep* 85: 803-808, September 1970.
- (14) Helfand, A.: Keep them walking. *J Am Podiatry Assoc* 58: 117-126, March 1968.
- (15) Levy, L.: A teaching program in podiatric medicine in the dermatology department of a medical school. *J Med Educ* 49: 1000-1002, October 1974.